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THE GRAY HERBARIUM EXPEDITION TO NOVA SCOTIA 1920.

M. L. Fernald.

(*Continued from p. 171*)

Part II. Noteworthy Vascular Plants collected in Nova Scotia, 1920.

The published lists of Nova Scotian plants contain so very few records from Digby, Yarmouth, Shelburne, and Queens Counties that it is desirable to make our records from these western counties rather detailed and to enumerate all species which seem to be characteristic of this region as contrasted with the northern and eastern counties. Many species which abound from Digby Neck and An-

napolis County to Cape Breton, in the regions of calcareous or sweet soils, are very rare in the acid western and southwestern counties and, consequently, so far as our limited and somewhat negative observations allow, special note is made of these plants. A large number seen wherever we went, from Yarmouth to Cape Breton—such species as *Polypodium vulgare* L., *Polystichum acrostichoides* (Michx.) Schott, *Onoclea sensibilis* L., *Osmunda cinnamomea* L., *Taxus canadensis* Willd., *Pinus Strobus* L., etc.—are not here specially noted, although species belonging to recently revised genera are freely enumerated. In the following enumerations, the 110 species of plants marked ** are new to the flora of Canada, while the additional 122 marked * are here recorded for the first time, apparently, from Nova Scotia. The names of introduced species are in italics. The International Rules of Botanical Nomenclature are followed.

WOODWARDIA VIRGINICA (L.) Sm. Swampy spruce woods, boggy margins of lakes, savannahs and cobbly lake-shores, rather general in Yarmouth and Queens Cos. See pp. 109, 147, 150, 166, 170. Earlier records eastward to Halifax Co.

** W. AREOLATA (L.) Moore. Very locally in YARMOUTH Co.: upper border of cobble-beach of Butler's (Gavelton) Lake, Gavelton; wet thicket at border of west shore of Randel Lake, Argyle. See pp. 149, 166, 170.

ATHYRIUM ACROSTICHOIDES (Sw.) Diels. *Asplenium acrostichoides* Sw. Rich or calcareous woods. HANTS Co.: Five-Mile River. CAPE BRETON Co.: George River. Various ealirer records from Hants and Halifax Cos. to Inverness. See pp. 136, 165.

A. ANGUSTUM (Willd.) Presl.[1] Apparently less common southwestward than var. *rubellum*. Collected at Port Mouton (Queens) and at George River (Cape Breton Co.).

** A. ANGUSTUM, var. ELATIUS (Link) Butters, RHODORA, xix. 191 (1917). YARMOUTH Co.: swampy woods by Eel Lake. Previously known to extend eastward to south-central Maine—see RHODORA, xxii. 84 (1920).

A. ANGUSTUM, var RUBELLUM (Gilbert) Butters, 1. c. 193 (1917). The common form of the species at least from Yarmouth Co. to Queens Co.

POLYSTICHUM BRAUNII (Spenner) Fée. To the several records from rich or calcareous areas from Kings Co. to Cape Breton may be added Folleigh, Colchester Co. (see p. 136) and George River, Cape Breton Co.

[1] For discussion of *Athyrium angustum* (*Asplenium Filix-femina* of eastern America, in great part) see Butters, RHODORA xix. 190 (1917).

** Thelypteris palustris Schmidel, forma suaveolens (Clute) Fernald, Rhodora, xxiii. 165 (1921). Open spruce and fir thickets along brook at head of Baddeck Bay, Baddeck.

** T. simulata (Davenp.) Niewl., Am. Midl. Nat. i. 226 (1910). *Aspidium simulatum* Davenp. Local, probably somewhat general, Yarmouth Co. to Queens Co. Yarmouth Co.: boggy swales and thickets bordering Lily Lake (near Yarmouth); wet alder thicket at southwest corner of Salmon (Greenville) Lake; bushy knolls in wet peaty barrens, Lower Argyle. Queens Co.: knolls in wet sphagnous spruce bog near Louis Lake, Port Joli; knolls in springy sphagnous bog in spruce woods, near mouth of Broad River. See pp. 104, 154, 156, 158.

T. marginalis (L.) Nieuwl., l. c. (1910). *Aspidium marginale* (L.) Sw. Although common eastward, apparently rare in the southwestern counties. Seen by us in Yarmouth Co. only near Randel Lake, Argyle.

T. Filix-mas (L.) Nieuwl., l. c. (1910). To the numerous stations on Cape Breton Island may be added the region about the limestone quarry, George River. See pp. 165, 170.

T. Boottii (Tuckerm.) Nieuwl., l. c. Frequent in swampy woods and thickets of Yarmouth Co. See pp. 104. Jack records it from Halifax Co.

Cystopteris bulbifera (L.) Bernh. Abundant in open woods about limestone and gypsum outcrops; Five-Mile River (Hants), Port Bevis (Victoria) and George River (Cape Breton). See pp. 136, 164, 170. Previously recorded from other calcareous areas from Hants to Cape Breton.

C. fragilis (L.) Bernh., var. Mackayi Lawson, Fern Flora of Canada, 233 (1899). Our only collection was from the vicinity of the limestone quarry at George River (Cape Breton). See p. 165.

Pteretis nodulosa (Michx.) Nieuwl. *Onoclea Struthiopteris* of American authors. Alluvial woods and about limestone or gypsum outcrops, Hants, Victoria and Cape Breton Cos. See pp. 136, 164, 170.

Schizaea pusilla Pursh. At various stations in Digby, Yarmouth, Queens and Halifax Cos. Digby Co.: apparently rare and local in wet peaty hollows in savannahs along Little River east of Tiddville. Yarmouth Co.: sphagnous bog at outlet of Porcupine Lake, Arcadia; sandy and peaty bog, Sand Pond, Argyle; wet peaty sloughs and quagmire-pools or even in depressions of dryish *Cladonia*-covered barrens west of Goose Lake, Lower Argyle. Queens Co.: sphagnous springy bog in spruce woods near mouth of Broad River. Halifax Co.: slaty ledges and cobbly upper beach of Shubenacadie Grand Lake, near Mrs. Britton's station. See pp. 91, 99, 103, 134, 135, 148, 153, 161, 168, 170.

OPHIOGLOSSUM VULGATUM L. Frequent in damp sandy and cobbly beaches of lakes or in sterile meadows, Digby and Yarmouth Cos. Varying from large plants to the smallest extreme (Var. *minus* Moore, *O. arenarium* E. G. Britton) in different portions of individual colonies. See pp. 141, 142.

BOTRYCHIUM SIMPLEX E. Hitchc. Rare: a small colony of extremely dwarf plants, sandy and gravelly beach of Cedar Lake, Yarmouth Co. See p. 102.

B. RAMOSUM (Roth) Aschers. Rare: a solitary plant in mixed woods, southern slope of North Mt., Middleton; previously recorded from Blomidon northward and eastward.

B. DISSECTUM Spreng. and forma OBLIQUUM (Muhl.) Fernald, RHODORA, xxiii. 151 (1921). Frequent or common in sandy or gravelly, either open or turfy soils of Digby, Yarmouth and Shelburne Cos. Recorded by others eastward to Halifax Co. See pp. 141, 151.

B. TERNATUM (Thunb.) Sw., var. RUTAEFOLIUM (A. Br.) DC. Apparently rare in or absent from the southwestern section: seen only at Cedar Lake, Digby Co.

* EQUISETUM LITORALE Kuehl. Very abundant on the wet lower gravelly beach of Shubenacadie Grand Lake (Halifax Co.).

* E. LIMOSUM L., forma POLYSTACHIUM (Brueckn.) Doell; Fernald & Weatherby, RHODORA, xxiii. 47 (1921). Boggy thicket, Hectanooga. See p. 97.

E. HYEMALE L., var. AFFINE (Englm.) A. A. Eaton. Light sandy or gravelly banks, railroad embankments, etc., through the northern and northwestern counties, west to banks of Sissiboo River, Digby Co.

E. SCIRPOIDES Michx. Rich wooded banks and mossy slopes, Cape Breton to the North Mt., Annapolis Co. See pp. 133, 139, 170.

LYCOPODIUM INUNDATUM L. Common throughout the province.

L. INUNDATUM L., var. BIGELOVII Tuckerm. Sandy and peaty beaches of lakes and in boggy savannahs, common in Digby and Yarmouth Cos. To be expected eastward. Reported in Macoun's Catalogue from Grand Lake, Halifax Co. and from North Sydney and Louisburg, Cape Breton; but the only specimens we have seen of Macoun's material from North Sydney are not characteristic. See pp. 99, 100, 161, 169.

L. ANNOTINUM L., var. ACRIFOLIUM Fernald, RHODORA, xvii. 124 (1915). Less common than typical *L. annotinum*. Seen by us only in spruce and maple swamps by Clement Pond, Barrington (Shelburne Co.) and on a dry bank at Hectanooga (Yarmouth Co.).

L. CLAVATUM L., var. MEGASTACHYON Fernald & Bissell, RHODORA, xii. 53 (1910). Frequent throughout the province.

L. OBSCURUM L. The current descriptions of the two well defined

varieties of this species are often misinterpreted, with the result that much of typical *L. obscurum* is passing as var. *dendroideum*. The two varieties may ordinarily be distinguished as follows:

Branches spreading or recurving, flattened or concave beneath: the linear-lanceolate leaves about 1 mm. broad; the lower (and often the upper) series usually appressed; the lateral spreading: spikes 1.5–4 cm. long, 4–6 mm. thick.
L. obscurum (typical).

Branches erect and crowded, not obviously flattened: the linear-attenuate leaves decidedly less than 1 mm. broad, all incurved-ascending: spikes 2–5 cm. long, 3.5–4.5 mm. thick.
Var. *dendroideum*.

L. OBSCURUM L. The typical form of the plant is common in Nova Scotia.

* L. OBSCURUM, var. DENDROIDEUM (Michx.) D. C. Eaton. Frequent in dry open woods and pastures or clearings, Yarmouth Co. to Lunenburg Co.

* L. COMPLANATUM L. Decidedly rare as compared with the common var. FLABELLIFORME Fernald. Seen only in CAPE BRETON Co.: spruce woods on hill across the river from the quarry, George River.

L. TRISTACHYUM Pursh. Dry barrens, sandy woods and gravelly embankments, apparently frequent throughout. See p. 130.

ISOETES TUCKERMANI A. Br. The abundant species everywhere in the margins of ponds in the silicious regions of the province. In argillaceous regions passing to the stouter but otherwise hardly distinguishable vars. *borealis* A. A. Eaton and *Harveyi* (A. A. Eaton) Clute.

PINUS BANKSIANA Lamb. According to Fernow (Forest Cond. N. S. 11) "Jack Pine (*Pinus divaricata*) is found only in special localities on poorest sites in Colchester county." In Cumberland Co. it is seen from the train to be abundant, mixed with *P. resinosa*, on the hills between Thomson and Atkinson Siding, and in less abundance about Springhill Junction; both regions composed of sterile Carboniferous sandstone. See p. 130. The conservatism of Fernow's statement is further indicated by Fowler's reference to this as "The most common species of pine" in the region of Canso.—Fowler, Ann. Rep. Dept. Mar. and Fish., xxxix. 59 (1907).

* ABIES BALSAMEA (L.) Mill., var. PHANEROLEPIS Fernald, RHODORA, xi. 203 (1909). With the typical form of the species, boggy barrens west of Goose Lake, Argyle.

THUJA OCCIDENTALIS L. To the rather few stations for White Cedar in Nova Scotia should be added Cedar Lake, Digby and Yarmouth Cos. (near Port Maitland). It is doubtless also at Cedar Lake, east of Corberrie. See pp. 100, 102.

JUNIPERUS COMMUNIS L., var. DEPRESSA Pursh. In Nova Scotia

as on Prince Edward Island as often in wet boggy barrens as on drier habitats.

J. HORIZONTALIS Moench. *J. sabina*, var. *procumbens* Pursh. Although stated by Macoun to be "abundant on exposed slopes and river banks from Anticosti, Nova Scotia, New Brunswick" westward, this species was not once met by our party in the southwestern counties. It is on headlands of the Bay of Fundy and Northumberland Strait and on Sable Island and Cape Breton.

SPARGANIUM AMERICANUM Nutt. Common throughout the province, passing freely to var. ANDROCLADUM (Engelm.) Fernald & Eames. See p. 142.

S. DIVERSIFOLIUM Graebn. Apparently common thoughout the province.

S. DIVERSIFOLIUM, var. ACAULE (Beeby) Fernald & Eames. Frequent.

S. FLUCTUANS (Morong) Robinson. Deep water of Trefry's Lake, Arcadia, Yarmouth Co. See p. 145.

*S. MINIMUM Fries. Apparently local: quiet pools in Little River east of Tiddville, Digby Co. Previously collected by Nichols in a brook, mountains west of Ingonish, Victoria Co.

POTAMOGETON NATANS L. Frequent from Digby Neck to Cape Breton.

*P. OAKESIANUS Robbins. Frequent in shallow peat- or sand-bottomed lakes and pools of Digby and Yarmouth Cos. See pp. 146, 148, 163. Formerly collected at margin of Taylor's Lake, Sunny Brae, Pictou Co. (*H. St. John*, no. 1373).

P. ALPINUS Balbis. Seen by us only at Truro and Baddeck. See p. 164.

**P. PULCHER Tuckerm. Muddy cove in Lily Lake, Sandy Cove, Digby Co. See p. 164.

P. AMPLIFOLIUS Tuckerm. Abundant in Sloane Lake, Pleasant Valley, Yarmouth Co.

P. GRAMINEUS L., var. GRAMINIFOLIUS Fries. Nov. Fl. Suec. ed. 2, 36 (1828); Robbins in Gray, Man. ed. 5, 487 (1867); Freyer, Journ. Bot. xxx. 33, tt. 317, 318 (1892). *P. gramineus*, proles α. *graminifolius* (Fries) Aschers & Graebn. in Engler, Pflanzenr. iv. Fam. 11: 86 (1907). *P. gramineus*, β. *gramineus* Laestad. Vet. Acad. Handl. (1825) 152, acc. to Fries., not *P. gramineum*[*us*] L. Sp. Pl. i. 127 (1753) which, according to Freyer (Pot. Brit. Isl. 65), is *P. heterophyllus* Schreb. *P. gramineus*, var. (?) *myriophyllus* Robbins in Gray, Man. ed. 5, 487 (1867). *P. heterophyllus*, var, *graminifolius* (Fries) Wats. & Coult. in Gray, Man. ed. 6, 561 (1890). *P. heterophyllus* of most recent American authors, not Schreb. *P. graminifolius* (Fries) Freyer, Pot. Brit. Isl. 64, t. 36 (1915).—Ponds, pools, and streams, frequent.

There has always been confusion as to the identity of the common

and highly variable American plant which is here called *P. gramineus*, var. *graminifolius*. In Freyer's *Potamogetons of the British Isles* typical *P. gramineus* L. (= *P. heterophyllus* Schreb.) is figured and described as having the upper stipules strongly divergent and the short peduncles conspicuously thickened at summit, while *P. graminifolius* is illustrated with more appressed-ascending stipules and elongate barely club-shaped peduncles. All American material in the Gray Herbarium and the herbarium of the New England Botanical Club, altogether about 300 sheets, agrees with *P. graminifolius* in these characters, and typical *P. gramineus* or *P. heterophyllus* is rare if not quite unknown in North America. Freyer indicates differences in the fruit, although it is significant that in his description he was obliged to quote from Morong the supposed distinctive characters of the fruit of *P. graminifolius*. These differences, however, do not appear constant and it is noteworthy that many American plants, otherwise good *P. graminifolius* as treated by Freyer, have the fruits quite like his illustrations under *P. gramineus*. It seems best, therefore, to consider *P. graminifolius* a strong variety of the complex *P. gramineus*, as has been so generally the practice for a full century by students of the Pondweeds.

** P. GRAMINEUS, var. SPATHULAEFORMIS Robbins in Gray, Man. ed. 5, 487 (1867). *P. spathaeformis* Tuckerm. ex Robbins, l. c. (1867); Bennett, Journ. Bot. xxxviii. 130 (1900); Fernald, RHODORA, viii. 224 (1906); Robinson & Fernald in Gray, Man. ed. 7, 74 (1908). *P. varians* Morong ex Freyer, Journ. Bot. xxv. 308 (1887), xxvii. 33, t. 287 (1889); Freyer, Pot. Brit. Isl. 67, t. 41 (1915). *P. spathulaeformis* (Robbins) Morong, Mem. Torr. Bot. Cl. iii. pt. 2, 26 (1893), but hardly t. 35 (with attenuate and therefore quite uncharacteristic submersed leaves). *P. Zizii* × *gramineus* Aschers. & Graebn. Synop. Mitteleur. Fl. i. 327, in part (1897). *P. spathuliformis* Asch. & Graebn. in Engler, Pflanzenr. iv. Fam. 11:91 (1907).—Apparently local, collected only once in DIGBY Co.: brook with muddy bottom, outlet of Midway (Centreville) Lake.

Var. *spathulaeformis* was proposed by Robbins with doubt as to its exact affinity because his material from Mystic Pond in Middlesex Co., Massachusetts, was sterile. Newfoundland material from two stations closely matches the original Mystic Pond collections and the material from Grand Falls, Newfoundland (*Fernald & Wiegand*, no. 4475) might well have formed the basis of the plate of *P. varians* in Freyer's *Potamogetons of the British Isles*. Both New-

foundland collections are sparingly fruiting, while the Nova Scotia plant is sterile, but exactly similar material from the Magdalen Islands as well as from southern Maine has good fruit which is quite like that of var. *graminifolius*. In fact, a large series of specimens of var. *spathulaeformis* (from Newfoundland, Anticosti Island, the Magdalen Islands, Nova Scotia, Maine, Massachusetts and Connecticut) seems to be separable from var. *graminifolius* only by its round-tipped or decidedly obtuse submersed leaves. It has been generally surmised that *P. spathaeformis* or *P. varians* is a hybrid of *P. gramineus* or its var. *graminifolius* with *P. angustifolius* Berchtold & Presl; but since the latter species is unknown northeast of Massachusetts, while the supposed hybrid extends as a fertile plant to eastern Newfoundland, its hybrid nature is certainly extremely doubtful. Furthermore, the fertile obtuse-leaved plant of Newfoundland, the Magdalen Islands and Maine has the characteristic small fruit of *P. gramineus* and its var. *graminifolius*.

P. BUPLEUROIDES Fernald. Frequent in brackish waters. Rare in fresh water: seen only in Midway (Centreville) Lake, Centreville, Digby Co. See p. 163.

The characters originally pointed out seem consistently to distinguish *P. bupleuroides* from the European and northern *P. perfoliatus* L. — the less puckered leaf, fewer nerves, slender stem, almost filiform peduncle without much spongy thickening, and smaller, firm and olive-brown fruit. Dr. St. John and I have reviewed the material and find no specimens to match old world *P. perfoliatus* from south of Labrador.

* P. FRIESII Rupr. Seen only in COLCHESTER and CUMBERLAND Cos.: quiet waters of Salmon River, Truro; spring-pools and ditches south of Amherst.

* P. CONFERVOIDES Reichenb. Deep or shallow water of lakes, small ponds and bog-pools, frequent in YARMOUTH Co.: deep water of Trefry's Lake, Arcadia; peaty and muddy pond-hole near head of St. John Lake, Springhaven; water-holes in sphagnous bog by the station, Argyle; drifted ashore from deep water of Great Pubnico Lake. See pp. 145, 149.

* P. DIMORPHUS Raf. Shallow water on tidal flats of Tusket River, Tusket Falls, Yarmouth Co.

* P. FILIFORMIS, var. BOREALIS (Raf.) St. John, RHODORA, xviii. 134 (1916). Fresh to brackish swale at head of Baddeck Bay, Baddeck.

* P. VAGINATUS Turcz. Bull. Soc. Nat. Moscou, xi. 102 (1838); St. John, RHODORA, xx. 191 (1918). *P. moniliformis* St. John,

Rhodora, xviii. 130 (1916). Cold, shallow brook in woods at head of Baddeck Bay, Baddeck. See p. 164.

P. pectinatus L. Brackish or salt water at various stations from Yarmouth Co. to Cape Breton. See p. 141.

Ruppia maritima L., var. longipes Hagström, Botaniska Notiser (1911) 138; Fernald & Wiegand, Rhodora, xvi. 125 (1914). Brackish water at various points throughout the province. See p. 141.

R. maritima, var. rostrata Agardh in Physiogr. Sällsk. Arsbetr. 6 Maj (1823) 37; Fernald & Wiegand, l. c. Brackish pools in the marshes below Truro.

Zannichellia palustris L., var. major (Boenningh.) Koch. See p. 110. Apparently frequent in brackish or saline waters or on saline mud.

*Zostera marina L., var. stenophylla Aschers. & Graebn. This very slender extreme of the species abounds in Great Bras d'Or Lake in the gravel about Kidstone Island.

Najas flexilis (Willd.) Rostk. & Schmidt. Not seen in Yarmouth, Shelburne and Queens Cos. Occasional elsewhere. See p. 146.

Triglochin palustris L. Characteristic of the fresh to brackish springy inner borders of salt marshes or on brackish sand-flats, throughout. Also in open peaty spots in a spring-fed bog south of Amherst.

*Sagittaria cuneata Sheldon. *S. arifolia* Nutt. Probably somewhat general in the argillaceous regions. Hants Co.: pond-hole near Five-mile River. Cumberland Co.: spring-pools and ditches south of Amherst. See pp. 131, 137.

S. graminea Michx. Margins of ponds and on fresh tidal mud at various stations from Yarmouth Co. to Cape Breton. See p. 146.

**Panicum dichotomiflorum Michx. Seen only in the Tusket Valley, Yarmouth Co.: sandy and gravelly shores and borders of savannahs, Tusket (Vaughan) Lake and Butler's (Gavelton) L., Gavelton. See p. 166.

**P. capillare* L., var. *occidentale* Rydb. See Rhodora, xxi. 111 (1919). Seen only about railroad yards; obviously introduced.

**P. virgatum L., var. cubense of many authors, not Griseb. Gravelly beaches or peaty borders of lakes of Yarmouth Co.: Salmon (Greenville) Lake; St John L., Springhaven; Butler's (Gavelton) L., Gavelton; Great Pubnico L. See p. 156.

P. longifolium Torr., var **tusketense, n. var., planta dense cespitosa 2–7 dm. alta; foliis 3–6 mm. latis glabris; paniculis coarctatis 0.3–1.5 dm. longis ramis plerumque valde adscendentibus; spiculis 2.7–3.4 mm. longis; gluma superiore lemma sterile non aequante caryopsibus ellipsoideis obtusis 1.6–1.8 mm. longis 0.8–0.9 mm latis.

Densely cespitose, 2–7 dm. high: leaves 3–6 mm. wide, glabrous:

panicles contracted, 0.3–1.5 dm. long, mostly with strongly ascending branches: spikelets 2.7–3.4 mm. long; upper glume shorter than the sterile lemma: caryopsis ellipsoid, obtuse, 1.6–1.8 mm. long, 0.8–0.9 mm. wide.—Valley of the Tusket River, NOVA SCOTIA: gravelly margin (northwest side) of Tusket (Vaughan) Lake, August 20, 1920, *Fernald, Bissell, Graves, Long* & *Linder*, no. 19,759; sandy and gravelly beach of Butler's (Gavelton) Lake, Gavelton, September 4, 1920, *Fernald, Long* & *Linder*, no. 19,763; wet peaty margin of Butler's Lake, Gavelton, September 4, *Fernald, Long* & *Linder*, no. 19,764 (TYPE in Gray Herb.); wet peaty shore, East Branch of Tusket River, Gavelton, September 4, *Fernald, Long* & *Linder*, no. 19,765; sandy and gravelly margin of Pearl Lake, Kemptville, October 7, 1920, *Fernald* & *Linder*, no. 19,761; peaty margin of Kegeshook Lake, October 8, 1920, *Fernald* & *Linder*, no. 19,762. See pp. 160, 168.

Differing from typical *P. longifolium* as it occurs from Texas and Florida to New Jersey in its low stature, glabrous and rather broader leaves, very contracted and short panicle, longer spikelets, short upper glume and broad and bluntish grain; the southern plant being mostly 6–8 dm. high, with the usually pilose-based leaves 2–5 mm. wide, the panicle 1–2.5 dm. long and with loosely ascending branches, the spikelets 2.4–2.7 mm. long, the upper glume equaling or longer than the lemma and the slender and acute grain 0.4–0.7 mm. wide. If the material from the South alone were accessible for comparison the Nova Scotian plant would seem a distinct species; but some specimens from New Jersey, Connecticut and Rhode Island show spikelets up to 3 mm. long and grains quite as broad as in the Nova Scotian material, but with the elongate glume and looser panicle of the southern plant; while specimens from Lake Werden, Rhode Island have the panicle as contracted as in the Tusket Valley plant.

P. DEPAUPERATUM Muhl., var. **psilophyllum**, n. var., foliis utrinque glabris vel vaginis sparsissime setulosis.

Leaves wholly glabrous or the sheaths very sparsely setulose. Nova Scotia to Megantic Co., Quebec, Wisconsin and Virginia. TYPE: extremely sterile land, Canton, Maine, July 7, 1906, *J. C. Parlin*, no. 1957 (Gray Herb.). In Nova Scotia known only from Queens, Annapolis and Kings Cos. Macoun records it from Kingston. We collected it in a sandy and gravelly railroad yard at Middleton (Annapolis) and in gravelly soil near the mouth of Broad River (Queens).

The characteristic plant about Middleton, in the undisturbed soil of the dry plains and open woods, completely lacks the large primary panicles on elongate culms and bears only reduced basal panicles of 1–4 spikelets. This extreme form may be called

** P. DEPAUPERATUM, VAR. PSILOPHYLLUM, forma **cryptostachys**, n. f., paniculis omnino reductis basilaribus, spiculis 1–4.—NOVA SCOTIA: dryish open sandy plains, Middleton, July 20, 1920, *Fernald Pease* & *Long*, no. 19,769 (TYPE in Gray Herb.); dry sandy thickets and borders of woods, Middleton, July 21, *Fernald* & *Pease*, no. 19,770. See p. 138.

Var. *psilophyllum* is the common plant with sheaths sparsely pilose or quite glabrous. This extreme and the plant with copiously pilose sheaths were both included by Muhlenberg in his *P. depauperatum* but by Hitchcock & Chase "a specimen with pilose sheaths . . . has been chosen as the type." Whereas var. *psilophyllum* is the dominant plant of the North, the more pilose extreme is commoner in the southern and central states. Thus, of the 173 sheets of specimens examined from Nova Scotia, Quebec and New England, 152 are var. *psilophyllum* and only 21 the plant with copiously pilose sheaths. Conversely, all the material examined from North Carolina, and Georgia to Arkansas, Missouri and Illinois is typical *P. depauperatum*.[1]

Recently Mr. F. T. Hubbard (RHODORA, xiv. 169) has taken up the name *P. strictum* Pursh (1814) to displace *P. depauperatum* Muhl. (1817) in spite of the earlier *P. strictum* R. Br. (1810); Hubbard citing as a basis for his change Articles 37 and 50 of the International Rules. But the application of Art. 37 (rejecting names published without diagnoses or merely cited in synonymy) is not apparent, for Robert Brown published *P. strictum* as a valid species with careful description. Art. 50 was applied by Hubbard to the case of *P. strictum* Pursh through an obvious misapprehension, for, although *P. strictum* R. Br. is treated in *Index Kewensis* as a synonym of *P. marginatum*, it is not so treated by those who know the plants; Bentham, F. M. Bailey and other students of the Australian flora all maintaining it as at least a good variety, which rests directly

[1] In its greater abundance northward *P. depauperatum*, var. *psilophyllum* is comparable with

P. LINEARIFOLIUM Scribn., var. **Werneri** (Scribn.), n. comb. *P. Werneri* Scribn. in Britton & Brown, Ill. Fl. iii. 501, fig. 268b (1898).

Typical *P. linearifolium* has copiously pilose sheaths, var. *Werneri* glabrous sheaths. The very minute difference in spikelets relied upon by Hitchcock & Chase is very inconstant and wholly unsatisfactory and the only usable distinction is in the sheath. Of 103 sheets examined from Quebec and northern and central New England 76 are var. *Werneri*, 27 the typical form of *P. linearifolium*. Conversely, of 28 sheets examined from Missouri 26 are typical *P. linearifolium* and only 2 var. *Werneri*.

upon *P. strictum* R. Br. The general recognition of *P. strictum* R. Br. as the nomenclatorial basis of a variety does not, as Hubbard seems to infer, render that name "an earlier homonym which is universally regarded as nonvalid" (Art. 50).

P. BOREALE Nash. Abundant in damp or dryish situations throughout the province.

** P. SPRETUM Schultes. Boggy savannahs and peaty, sandy or gravelly upper borders of lake-beaches, eastward to Halifax Co.; sixteen collections from the following stations. DIGBY Co.: Cedar Lake. YARMOUTH Co.: Cedar L.; Beaver L.; Porcupine L., Arcadia; large lake north of Saller L., Kemptville; Fanning L., Carleton; Tusket (Vaughan) L.; Butler's (Gavelton) L., Gavelton; St. John L., Springhaven; Kegeshook L.; Sand Pond. Argyle; Great Pubnico L. HALIFAX Co.: Shubenacadie Grand Lake. See pp. 99, 101, 102, 141.

(*To be continued.*)

A NEW STATION FOR POGONIA AFFINIS.

E. JEROME GRIMES.

JUNE 1st, 1920, I was lucky enough to find three flowering specimens of that rare, interesting, and much discussed orchid, *Pogonia affinis* Austin, while making a hurried trip through some woods west of Williamsburg, which is situated on the coastal plain about 30 miles west of Norfolk, Virginia. This year the same station was visited the beginning of the second week in May and, by diligent searching throughout the afternoon, fifteen plants each consisting of a flowering shoot were observed. The difference in flowering dates is due to the season, which was three weeks to a month earlier in 1921.

The habitat is a flat dry hardwood on a gently undulating interstream area. The soil is a well drained gray fine sandy loam over a yellowish sandy clay or clay. The vegetation consists chiefly of white oak, beech, tulip and chestnut with a few scattering Loblolly pines, and an abundance of flowering dogwood. The undergrowth is very sparse and the Pogonias were found scattered over an area of about ten acres, occurring either singly or in open groups of two to four plants.

A composite soil sample of the habitat was tested and found to be practically neutral to Brom Thymol Blue, and soil shaken from the